

**Atty Docket: 2003-IP-009806 U1 (1391-43800)****Patent****REMARKS/ARGUMENTS**

At the time of the Office Action of March 3, 2006, claims 1-25 were pending in the present patent application. Claims 1-25 have been rejected on various grounds discussed below. Reconsideration is requested in view of the following remarks.

**Claim Rejections – 35 USC § 102**

Claims 1-25 were rejected as being anticipated by each of these Patents: US 6,202,747 and US 4,078,606. The Applicants respectfully traverse these rejections.

Neither of the two cited references teaches a packer having both a double acting slip and a single acting slip. Each reference teaches only a double acting slip for anchoring a packer to a casing. Neither reference teaches a packer capable of dividing forces on the packer between two different slips and transferring those forces through the two different slips to the casing at spaced apart locations.

**Rejections based on US 6,202,747**

The Examiner asserts that US '747 discloses an apparatus that includes an apparatus operatively positionable within a subterranean well comprising: a mandrel (23, 36, 59, 150); a double acting slip 7 and a single acting slip 34 disposed relative to the mandrel, the double acting slip being spaced axially apart from the single acting slip; and, a seal element 8 carried on the mandrel. The Applicants disagree with this reading of US '747.

US '747 discloses four embodiments. An element 34 appears only in the second embodiment, which is described beginning at Col. 6, line 47, with reference to Figs. 4A, 4B, 8A,

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8B and 6. It appears that the references to Figs. 8A and 8B were supposed to be to Figs. 5A and 5B (see col. 4, lines 18-21, where Figs. 5A and 5B are described as showing the second embodiment). In those figures, there is a mandrel 36 that forms the basic structure of a packer assembly. There is a dual acting slip 45, Fig. 5B and Col. 7, line 27. There is a seal element 46, Fig. 5B and Col. 7, line 28.

However, there is no single acting slip. The element 34 is the fingers 34 of a collet 35, Col. 6, lines 62-63. The collet 35 works in conjunction with double acting piston 29 to set the packer and lock the packer in set position. See col. 7, lines 19-24. When the annular piston 29 is pushed in the setting direction, the fingers 34 ratchets 48 engage matching mandrel 36 ratchets 49 locking the packer. See Fig. 5A and col. 7, lines 35-40. This is similar to the locking ratchet of claim 6 of the present application. The elements 34, 35, 48 are part of a piston locking ratchet arrangement and do not constitute slips within the context of the present invention as would be understood by one skilled in the art. Packer slips are elements that engage a well casing and resist movement of the packer relative to the casing. These elements 34, 35, 48 do not and cannot provide such a function. US '747 does not teach or discuss any need for the load spreading functions of the present invention and does not provide any apparatus capable of such function.

**Claim 13:**

With particular reference to claim 13, the Examiner asserts that US '747 discloses a packer settable within a tubular structure, the packer comprising: a mandrel (23, 36, 59, 150); first and second spaced apart slips 7, 34 disposed relative to the mandrel, the first and second slips being radially outwardly extendable into gripping engagement with the tubular structure when the packer is set therein, the first slip resisting a load applied to the mandrel in a first axial direction and the second slip resisting another load applied to the mandrel in a second direction, opposite the first

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direction; a seal element 8 carried about the mandrel, the seal element being radially outwardly extendable into sealing engagement with the tubular structure when the packer is set therein, a pressure differential in the first axial direction applied to the seal element being resisted by the second slip.

As discussed above, the element 34 is not a slip as understood by one skilled in the art. Neither the element 34 nor any other element taught by US '747 can perform the functional limitations of claim 13.

Claim 13 requires that the first and second spaced apart slips be radially outwardly extendable into gripping engagement with the tubular structure when the packer is set therein. The element 34, 35 cited by the Examiner as a slip is carried within an annular cavity 30 formed within the annular piston 29. The piston 29 is carried within the packer wall 40. Both the piston 29 and the packer wall 40 prevent any contact between the element 34, 35 and the well casing 47. The elements 34, 35 do not extend radially outward to engage any element, much less the tubular structure which the slip 45 engages. Instead, elements 34, 35 extend radially inwardly to engage the mandrel 36 ratchets 49. See Fig. 5A and col. 7, lines 35-40.

Since US '747 does not teach a second slip, it cannot teach a second slip resisting a load applied to the mandrel in the opposite direction of a load applied to the mandrel resisted by a first slip. The collet 34, 35 does not resist a load applied to the mandrel.

Since US '747 does not teach a second slip, it cannot teach a second slip resisting a load applied to the seal element. Loads applied to the seal element must be resisted by the one and only slip 45. The collet 34, 35 does not resist a load applied to the seal element.

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The elements 34, 35 do not resist any load applied to the packer, but instead simply hold the setting piston 29 in the locked position.

**Claim 18:**

With particular reference to claim 18, the Examiner asserts that US '747 discloses a method of securing an apparatus within a tubular structure disposed in a subterranean well, the method comprising the steps of: disposing a double acting slip and a single acting slip axially spaced apart on the apparatus; positioning the apparatus within the tubular structure; radially outwardly extending the double acting slip and the single acting slip, each of the double acting slip and the single acting slip grippingly engaging the tubular structure; and radially outwardly extending a circumferential seal element into sealing engagement with the tubular structure.

As discussed above, US '747 teaches only one slip, a double acting slip. It does not teach a single acting slip. The element 34, 35 suggested by the Examiner is not a slip, but is instead a ratchet locking mechanism for the packer setting piston. The element 34, 35 cannot be radially extended outwardly and cannot contact, much less grippingly engage the tubular structure. The elements 34, 35 are carried within the setting piston 29 and are pressed inwardly by the piston to grip the mandrel 36 on which the packer of US '747 is assembled in order to lock the packer setting piston 29.

**Rejections based on US 4,078,606:**

The Examiner asserts that the US '606 reference discloses an apparatus that includes an apparatus operatively positionable within a subterranean well comprising: a mandrel 20; a double acting slip 38 and a single acting slip 96 disposed relative to the mandrel, the double acting slip

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being axially spaced apart from the single acting slip; and a seal element 36 carried on the mandrel. The Applicants disagree with this reading of US '606.

US '606 does disclose a double acting slip 38. However, it is not disposed on the mandrel 20. It is disposed on the packer body 14, which is in fact the packer mandrel. Likewise, the seals 36a, 36b, and 36c are disposed on the packer body 14, not on the mandrel 20. See Figs. 1A and 1B, and col. 5, lines 23-29.

The mandrel 20 is not part of the packer 14. Instead it is part of a separate apparatus called a mandrel assembly 12 attached to a work string that is used to run the packer 14 into a well and to set and unset the packer 14 and may form the production tubing. The mandrel 20 extends through the packer 14, is axially movable relative to the packer 14, and is connected to the packer 14 by a J-slot section 22. See col. 4, line 54 to col. 5, line 4.

The mandrel assembly 12 is vertically movable within the packer 14 after the packer 14 is set in the well. The vertical movement allows a bypass flow passage 74 to be opened or closed. See Col. 8, lines 3-12. However, pressure below the packer 14 tends to lift the assembly 12 and open the passage 74 when it is desired to close the passage 74. See col. 8, lines 49-61.

US '606 provides a pressure compensation system to resist movement of the mandrel assembly 12 relative to the set packer 14. See col. 8, lines 62-67. The element 96 is part of the pressure compensation system and is referred to as a split ring slip 96 at col. 9, lines 4-5. However, element 96 is not part of the packer 14 itself. It is part of the work string that includes the mandrel 20 and mandrel assembly 12 that is used to set the packer 14 and to open and close the bypass passage 74.

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Note that the pressure compensation system is used after the packer is set. When a packer is set, its slips and its seal engage a well casing. In US '606, it is not necessary for the element 96 to engage any other element for the packer to be set.

The element 96 does not engage the well casing. Instead it engages an inner surface of the upper seal retainer 40, part of the packer 14. Any forces resisted by the element 96 are transferred to the packer 14 and through its slip 38 to the well casing. See col. 10, lines 20-37.

Therefore, even if element 96 is considered to be a single acting slip, it is not carried on the same mandrel as the double acting slip 38 and it does not and cannot perform the functions of a packer slip, i.e. it cannot resist movement of the packer 14 relative to the casing C, since it cannot and does not contact the casing C.

**Claim 13:**

With reference the claim 13, the Examiner asserts that US '606 discloses a packer settable within a tubular structure, the packer comprising: a mandrel 20; first and second axially spaced apart slips 38, 96 disposed relative to the mandrel, the first and second slips being radially outwardly extendable into gripping engagement with the tubular structure when the packer is set therein, the first slip resisting a load applied to the mandrel in a first axial direction and the second slip resisting another load applied to the mandrel in a second direction, opposite the first direction; a seal element carried about the mandrel, the seal element being radially outwardly extendable into sealing engagement with the tubular structure when the packer is set therein a pressure differential in the first axial direction applied to the seal element being resisted by the second slip.

The elements 38 and 96 are not disposed on the same mandrel. Element 96 is disposed on the mandrel assembly 12 that includes a mandrel 20. The double acting slip 38 is disposed on the

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packer body 14, which is a separate mandrel. Mandrel 20 is part of the work string used to run the packer 14 into a well and to set and unset the packer 14. Mandrel assembly 12 is also used to open and close bypass passage 74 by lifting and lowering the mandrel assembly 12 relative to the packer 14 when it has been set in the well.

The element 96 is not radially outwardly extendable into gripping engagement with the tubular structure when the packer is set therein. Instead element 96 is radially outwardly extendable into gripping engagement with an inner surface of the packer body 14.

Since element 96 may be engaged with the inner surface of the packer body 14 when the bypass passage 74 is closed, any forces applied to the mandrel assembly 12 and resisted by the element 96 are transferred through packer body 14 to the slip 38. Thus any forces on mandrel assembly 12 are added to the forces on packer 14 itself and the sum of the forces are resisted by the slip 38. There is no second slip resisting forces in a second direction opposite a first direction. This is the contrary to the present invention which teaches apparatus and methods for dividing various forces and distributing those forces to two separate slips, thereby reducing the total forces applied to any one location of the well casing.

The seal element 36 is not carried on the mandrel 20, but instead is carried on the packer body 14, which is actually a separate mandrel. US '606 does not teach how a pressure differential on the seal element is resisted. Since there is only one slip 38 that resists movement of the packer body 14 relative to the casing C, it must be slip 38 that resists the pressure differential. It is clear that the pressure differential on the seal 36 is not resisted by the element 96. It is equally clear that the forces on the mandrel assembly 12 that are resisted by the element 96 are transferred to the slip 38, not to another slip of the packer 14.

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With particular reference to claim 18, the Examiner asserts that US '606 discloses a method of securing an apparatus within a tubular structure disposed in a subterranean well, the method comprising the steps of: disposing a double acting slip and a single acting slip axially spaced apart on the apparatus; positioning the apparatus within the tubular structure; radially outwardly extending the double acting slip and the single acting slip, each of the double acting slip and the single acting slip grippingly engaging the tubular structure; and radially outwardly extending a circumferential seal element into sealing engagement with the tubular structure.

In US '606, the packer 14 itself has only one slip 38. The element 96 is part of another apparatus, the mandrel assembly 12, that is used for various running, setting, unsetting and flow control purposes discussed above. US '606 does not teach two slips on one apparatus.

The element 96 is not radially outwardly extendable to grippingly engage the tubular structure. The slip 38 may be extended outwardly from the packer body 14 to engage the tubular structure. But, the element 96 is extended outwardly to engage the inner surface of the packer body 14.

The seal 36 of US '606 is radially outwardly extendable into contact with the same tubular structure as the slip 38. However, it does not extend outward to engage the same body as the element 96 which extends outwardly to engage the inner surface of the packer body 14. The seal 36 is carried on the outer surface of the packer body 14.

In view of these substantial differences between the cited references and the independent claims 1, 13 and 18, the Applicants submit that the independent claims are clearly patentable over



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the cited references. Since the remaining claims all depend from claims 1, 13 or 18, the Applicants submit that the dependent claims are also patentable over the cited references.

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Consideration of the foregoing remarks, reconsideration of the application, and withdrawal of the rejections is respectfully requested by Applicants. It is believed that each ground of rejection raised in the Office Action dated March 3, 2006 has been fully addressed. If any fee is due as a result of the filing of this paper, please appropriately charge such fee to Deposit Account Number 50-1515 of Conley Rose, P.C., Texas. If a petition for extension of time is necessary in order for this paper to be deemed timely filed, please consider this a petition therefore.

If a telephone conference would facilitate the resolution of any issue or expedite the prosecution of the application, the Examiner is invited to telephone the undersigned at the telephone number given below.

Respectfully submitted,  
CONLEY ROSE, P.C.

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